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165 Years Of History

Welland Canal Opens Lakes To Early Trade

When European explorers and fur traders first began to use the Great Lakes-St. Lawrence River system as a transportation route, one of their greatest obstacles was Niagara Falls.

Until 1829, the only route from Lake Ontario to Lake Erie included a lengthy portage from Queenston, below the falls, to Chippawa Creek, above the falls.

But by 1824 an enterprising businessman named William Hamilton Merrit recognized the potential for a canal and series of locks that would allow vessels to scale the 100-metre Niagara Escarpment, which separated Lake Ontario and Lake Erie. This canal would provide a direct trade route across the Niagara Peninsula.

The first sod in the Welland Canal was turned on November 30, 1824. A marvel of perseverance and engineering at the time, the canal made use of natural waterways wherever possible and contained 40 wooden locks with depths of 2.4 metres. The first ship sailed through the canal on November 30, 1829.

Today's Welland Canal is an integral part of the St. Lawrence Seaway. Although it has been reconstructed four times in its 165 years of existence, it continues to rank as one of the outstanding engineering feats of the twentieth century.

The present canal runs for 43 km in a nearly-straight line between Port Weller on the south shore of Lake Ontario and Port Colborne on the north shore of Lake Erie.

Seven locks averaging just over 14 metres deep allow vessels to traverse the Niagara Escarpment, and an eighth makes the final adjustment between the elevation of the Canal and that of Lake Erie.

Adapted from, *The Welland Canal Section of the St. Lawrence Seaway*, St. Lawrence Seaway Authority (1992).

Seaway Facts

Route To The Heart Of The Continent: The Welland Canal

The Welland Canal has uses in addition to its function as a deep draft waterway between Lake Ontario and Lake Erie. It also provides water for power generation at Ontario Hydro's DeCew Falls generating plants, and it supplies water for industrial, municipal and water quality purposes.

The Canal's water supply is diverted from Lake Erie to Lake Ontario. The present flows through the waterway average 244 cubic metres per second. This compares to the Niagara River's average flow of 5,500 cubic metres per second.

World's Largest

Not only are the Great Lakes and St. Lawrence River the world's largest system of fresh surface water, the St. Lawrence Seaway is the world's longest deep-draft inland waterway.

This international network of lakes, rivers and canals stretches more than 3,700 kilometres from the Gulf of St. Lawrence to Duluth, Minnesota.

Coping With Ice

Although the seaway facilities upstream of Montreal are closed to navigation in the winter months, several ice management techniques are used to extend the seaway's open season and to ensure that vessels have adequate time to depart the system as the winter freeze-up approaches.

These techniques include air bubbler and heating devices to prevent ice buildup around lock gates, ice booms to assist orderly formation and break-up of ice, ice breaking by the Coast Guard, and other methods to limit the amount of loose ice that makes its way into the lock chambers.

Lake Level Update

All of the Great Lakes began September at levels that were within six centimetres of those recorded a year earlier. August precipitation over the basin was about 135 percent of the monthly average.

Lakes Superior and Ontario continue to hold steady near their long-term average levels. Meanwhile, Lakes St. Clair and Erie continued around 30 centimetres higher than their averages for the time of year, while Lake Michigan-Huron stayed just above 20 cm higher than its beginning-of-September average.

All of the lakes are forecast to continue to follow their usual seasonal cycles of declining levels until late winter. Montreal Harbour levels are forecast to continue declining as well; however, they will be well above chart datum throughout the forecast period.

More than a dozen locks make the Seaway the world's most spectacular lift system. Ships more than 200 metres long are routinely elevated more than 180 metres in their voyages through the series of locks between Montréal in the St. Lawrence River and Sault Ste. Marie on Lake Superior.

Sources: *Great Lakes Diversions & Consumptive Uses*, International Joint Commission (1985); *The St. Lawrence Seaway* , St. Lawrence Seaway Authority; and, *Levels Reference Study: Great Lakes-St. Lawrence River Basin*, Levels Reference Study Board (1993).

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